40. A method of preparing a bioceramic composition, comprising:

mixing powders of [an amorphous] a calcium phosphate and a promoter; [and]

pressing the powders to form a powder compact of a predetermined shape; and

hydrating the powder compact to form a reaction product, the reaction product comprising a poorly crystalline apatitic calcium phosphate.

43. A bioceramic composition comprising:

a compressed powder compact of a predetermined shape comprising powders of [an amorphous] a calcium phosphate and a promoter, said promoter selected to promote the conversion of the calcium phosphate into a strongly resorbable, poorly crystalline apatitic calcium phosphate [compressed to form a powder compact of a predetermined shape].

103. A method for treating a bone defect comprising:

identifying a bone site suitable for receiving an implant;

introducing a pressed powder compact at the bone site, said pressed powder compact comprised of a calcium phosphate and a promoter and having approximately the shape required for repair of the bone defect [and comprising an amorphous calcium phosphate and a promoter for promoting the conversion of the amorphous calcium phosphate into a strongly resorbable, poorly crystalline apatitic calcium phosphate],

whereby the pressed powder compact is converted in vivo into [the] a strongly resorbable poorly crystalline apatitic calcium phosphate.

Please add the following new claims:

111. The method of claim 40 wherein said conversion is associated with an endothermic reaction.

112. The method of claim 40 wherein said conversion comprises incubation of the hydrated compact at about 37 °C.

113. The method of claim 40 wherein said conversion is carried out *in vivo*.

114. The method of claim 40, wherein a hydration media for hydrating the powder compact is selected from the group consisting of physiological fluids, and serum and tissue culture medium.

115. The method of claim 40, further comprising lyophilizing the poorly crystalline apatitic calcium phosphate powder compact.

116. The method of claim 40 further comprising contacting the powders with a biologically active agent.

117. The method of claim 116, wherein the biologically active agent is selected from the group consisting of antibiotics, bone morphogenetic proteins, bone regenerative proteins, and vaccines.

118. The method of claim 40, wherein the promoter is selected from group consisting of calcium metaphosphate, dicalcium phosphate dihydrate, heptacalcium decaphosphate, tricalcium phosphates, calcium pyrophosphate dihydrate, crystalline hydroxyapatite, PCA calcium phosphate, calcium pyrophosphate, monetite, octacalcium phosphate, CaO, $CaCO_3$, calcium acetate, and H_2PO_4, and amorphous calcium phosphate.

119. The method of claim 40, wherein the promoter comprises dicalcium phosphate dihydrate (DCPD).

120. The method of claim 40 further comprising a supplemental material.

121. The method of claim 120 wherein the supplemental material is selected from the group consisting of collagen, demineralized bone, derivativized hyaluronic acid,

polylactic acid, poly (L-lactide) (PLLA), poly (D,L-lactide) (PDLLA), polyglycolide (PGA), poly (lactide-co-glycolide) (PLGA), dextrans, polyethylene, polymethylmethacrylate (PMMA), carbon fibers, polyvinyl alcohol (PVA), poly (ethylene terephthalate)polyamide, bioglasses, calcium sulfate and calcium phosphates.

122. The method of claim 40 wherein said poorly crystalline apatitic (PCA) calcium phosphate has an X-ray diffraction pattern comprising broad peaks at 2θ values of 26°, 28.5°, 32° and 33°.

123. The method of claim 40 wherein said poorly crystalline apatitic (PCA) calcium phosphate is further characterized in that when placed in a rat intramuscular site, resorption of at least 1 g of the material is at least 80% resorbed within one year.

124. The method of claim 40, wherein the calcium phosphate comprises amorphous calcium phosphate.

125. The method of claim 40 wherein said poorly crystalline apatitic (PCA) calcium phosphate is further characterized in that when placed in a rat intramuscular site, resorption of at least 1 g of the material is at least 80% resorbed within one year.

126. The composition of claim 43, wherein the calcium phosphate comprises amorphous calcium phosphate.

127. The composition of claim 43 further comprising a hydration media to hydrate the powder compact, wherein the hydrated powder compact converts to the poorly crystalline apatitic calcium phosphate.

128. The composition of claim 127 wherein the hydration media for hydrating the powder compact is selected from the group consisting of physiological fluids, and serum and tissue culture medium.

129. The composition of claim 127 wherein said conversion is associated with an endothermic reaction.

130. The composition of claim 43 further comprising a biologically active agent.

131. The composition of claim 130, wherein the biologically active agent is selected from the group consisting of antibiotics, bone morphogenetic proteins, bone regenerative proteins, and vaccines.

132. The composition of claim 43, wherein the promoter comprises dicalcium phosphate dihydrate (DCPD).

133. The composition of claim 43, wherein the promoter is selected from group consisting of calcium metaphosphate, dicalcium phosphate dihydrate, heptacalcium decaphosphate, tricalcium phosphates, calcium pyrophosphate dihydrate, crystalline hydroxyapatite, PCA calcium phosphate, calcium pyrophosphate, monetite, octacalcium phosphate, CaO, $CaCO_3$, calcium acetate, and H_3PO_4, and amorphous calcium phosphate.

134. The composition of claim 43 further comprising a supplemental material.

135. The composition of claim 134 wherein the supplemental material is selected from the group consisting of collagen, demineralized bone, derivativized hyaluronic acid, polylactic acid, poly (L-lactide) (PLLA), poly (D,L-lactide) (PDLLA), polyglycolide (PGA), poly (lactide-co-glycolide) (PLGA), dextrans, polyethylene, polymethylmethacrylate (PMMA), carbon fibers, polyvinyl alcohol (PVA), poly (ethylene terephthalate)polyamide, bioglasses, calcium sulfate and calcium phosphates.

136. The composition of claim 127 wherein said poorly crystalline apatitic calcium phosphate has an X-ray diffraction pattern comprising broad peaks at 2θ values of 26°, 28.5°, 32° and 33°.

137. The composition of claim 127 wherein said poorly crystalline apatitic calcium phosphate is further characterized in that when placed in a rat intramuscular site, resorption of at least 1 g of the material is at least 80% resorbed within one year.

138. A method of preparing a bioceramic composition, comprising:

mixing powders of a calcium phosphate and a promoter in a hydrating medium to form a paste, said promoter selected to convert the mixed powders into a poorly crystalline apatitic calcium phosphate;

introducing the paste into a mold of a predetermined shape; and

allowing the paste to harden to thereby obtain a poorly crystalline apatitic calcium phosphate article of a predetermined shape.

139. The method of claim 138 wherein said hardening comprises incubation of the paste at about 37 °C.

140. The method of claim 138, wherein a hydration media for hydrating the powder compact is selected from the group consisting of water, physiologically acceptable pH-buffered solutions, saline solution and serum and tissue culture medium.

141. The method of claim 138, further comprising lyophilizing the molded poorly crystalline apatitic calcium phosphate article.

142. The method of claim 138, further comprising contacting the powders with a biologically active agent.

143. The method of claim 142, wherein the biologically active agent is selected from the group consisting of antibiotics, bone morphogenetic proteins, bone regenerative proteins, and vaccines.

144. The method of claim 138, wherein the promoter is selected from group consisting of calcium metaphosphate, dicalcium phosphate dihydrate, heptacalcium decaphosphate, tricalcium phosphates, calcium pyrophosphate dihydrate, crystalline hydroxyapatite, PCA calcium phosphate, calcium pyrophosphate, monetite, octacalcium phosphate, CaO, $CaCO_3$, calcium acetate, and H_2PO_4, and amorphous calcium phosphate.

145. The method of claim 138 further comprising a supplemental material.

146. The method of claim 145 wherein the supplemental material is selected from the group consisting of collagen, demineralized bone, derivativized hyaluronic acid, polylactic acid, poly (L-lactide) (PLLA), poly (D,L-lactide) (PDLLA), polyglycolide (PGA), poly (lactide-co-glycolide) (PLGA), dextrans, polyethylene, polymethylmethacrylate (PMMA), carbon fibers, polyvinyl alcohol (PVA), poly (ethylene terephthalate) polyamide, bioglasses, calcium sulfate and calcium phosphates.

147. The method of claim 138 wherein said poorly crystalline apatitic (PCA) calcium phosphate has an X-ray diffraction pattern comprising broad peaks at 2θ values of 26°, 28.5°, 32° and 33°.

148. The method of claim 138, wherein the calcium phosphate comprises amorphous calcium phosphate.

REMARKS